



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,249	07/30/2001	Jeffrey Mark Siskind	NEC11092	8649

20844 7590 02/04/2004

NEC LABORATORIES AMERICA, INC.
4 INDEPENDENCE WAY
PRINCETON, NJ 08540

EXAMINER

BELL, MELTIN

ART UNIT	PAPER NUMBER
----------	--------------

2121

5

DATE MAILED: 02/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,249

Applicant(s)

SISKIND, JEFFREY MARK

Examiner

Meltin Bell

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 1, 7, 12, 13 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application **09/916,249** filed 07/30/01.

Claims 1-18 have been examined.

Priority

Applicant's claim for domestic priority against application number 60/247,474 filed **11/10/00** under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, by submitting in a timely manner PTO-1449, Information Disclosure Statement (IDS) with the filing of applicant's application or thereafter.

The information disclosure statement filed November 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because of missing or inaccurate information in the listing:

- The month of publication is missing for references AA, AC-AE, AH, AM, AV, AX and BB.
- Additional documentation is needed to support and confirm the dates of publication for references AI, AS, AU, AZ and BA.

- The entry for reference AT gives 1995 as the year of publication while the paper gives December 1994.

It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Drawings

The United States Patent and Trademark Office of Draftsperson's Patent Drawings Review have reviewed the formal drawings. They are objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated on the Form PTO-948, Notice of Draftsperson's Patent Drawing Review.

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- The start arrow at the top of flowcharts is missing from Figs. 1-2.
- Frame 22 suggested on page 28, lines 17-19 is missing from Fig. 5A.
- Frame 0 suggested on page 28, lines 17-19 is missing from Fig. 5B.

- Frame 32 suggested on page 28, line 21 is missing from Fig. 5B.
- Frames 0 and 30 suggested on page 28, line 23 are missing from Fig. 7A.
- Frames 0 and 33 suggested on page 28, lines 25-26 are missing from Fig. 7B.
- Frame 52 suggested on page 29, line 1 is missing from Fig. 7C.
- Frame 87 suggested on page 29, line 5 is missing from Fig. 7D.
- Frame 0 suggested on page 29, line 8 is missing from Fig. 7E.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the specification.

Appropriate correction may be required.

Claim Objections

Claims 1, 7 and 13 are objected to because of the following informalities:

Regarding claim 1, step d:

- the step depends on itself: "...steps (c) and (d) are..."

Regarding claim 7, step d:

- the step depends on itself: "...steps (c) and (d) are..."

Regarding claim 13, step d:

- the step depends on itself: "... steps (c) and (d) are..."

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The invention as disclosed in claim 1 is directed to non-statutory subject matter. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility.

As a method, claim 1 offers abstract ideas (e.g. "events", "types", "sets") that are not applied in the technological arts. Abstract ideas and their manipulation constitute "descriptive material" that is not patentable, *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 and *Schrader*, 22 F.3d at 292-93, 30 USPQ2d at 1457-58, respectively. If the abstract ideas of claim 1 represented functional descriptive material consisting of data structures and computer programs which impart functionality when employed as a computer component (recorded on some computer readable medium), they become structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. For examples,

- *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) offers claim to data structure stored on a computer readable medium that increases computer efficiency held statutory and
- *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 offers product-by-process claim to computer having a specific data structure stored in memory also held statutory while
- *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 offers claim to a data structure *per se* held nonstatutory.

Because the ideas are not claimed to be practiced on a computer and/or stored on a computer readable medium, they are not limited to practical applications in the technological arts. Specifically, the claim is a method without any particular practical application, such as a program running on a computer and stored in a computer readable medium or memory. On that basis alone, the claim is clearly nonstatutory.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility. Claims 1 is also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Support for this 35 U.S.C. 112, first paragraph rejections comes from MPEP 2164.07(I)(A):

"As noted in *In re Fouché*, 439 F.2d 1237, 169 USPQ 429 (CCPA 1971), if "compositions are in fact useless, appellant's specification cannot have taught how to use them." 439 F.2d at 1243, 169 USPQ at 434. The examiner should make both rejections (i.e., a rejection under 35 U.S.C. 112, first paragraph and a rejection under 35 U.S.C. 101) where the subject matter of a claim has been shown to be nonuseful or inoperative. The 35 U.S.C. 112, first paragraph, rejection should indicate that because the invention as claimed does not have utility, a person skilled in the art would not be able to use the invention as claimed, and as such, the claim is defective under 35 U.S.C. 112, first paragraph."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites "method" in line 14 of page 37. There is insufficient antecedent basis for this in the claim.

Claim 18 recites the "method" in line 24 of page 41. There is insufficient antecedent basis for this in the claim.

Claim Rejections - 35 USC § 102

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by *Hill* USPN 3,647,978 (March 7, 1972).

Regarding claim 1:

Hill teaches,

- (a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")
- (b) defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only")
- (c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories")
- (d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated")

Regarding claim 7:

Hill teaches,

- (a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")

Art Unit: 2121

(b) defining combinations of the primitive event types as a compound event type

(column 4, lines 72-75, "Sub-patterns, which we... terms of CAE's"; column 5, line 1, "and/or PAE's only")

(c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection... N duration categories")

(d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced... computer analyzing procedure"; column 5, lines 20-34, "The tail is... specified were generated")

Regarding claim 13:

Hill teaches,

(a) computer readable program code means for defining primitive event types (column 4, lines 12-19, "Before any detection... feature is absent"; column 4, lines 59-62, "One such element... single recursive subroutine")

(b) computer readable program code means for defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we... terms of CAE's"; column 5, line 1, "and/or PAE's only"; column 5, lines 15-20, "considering a computer... at this level")

(c) computer readable program code means for inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories"; 34-63, "Such a grammar-controlled...layer matrix board")

(d) computer readable program code means for computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated"; column 8, lines 23-24, "It is also...the sequence detector")

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2-6, 8-12 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hill* USPN 3,647,978 (March 7, 1972) in view of *Horvitz et al* USPN 6,021,403 (February 1, 2000) and in further view of *Siskind* "Grounding Language in Perception" (December 1994).

Regarding claim 2:

Hill teaches,

- (a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")
- (b) defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only")
- (c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories")
- (d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated")

However, *Hill* doesn't explicitly teach spanning intervals, Booleans or real numbers while *Horvitz et al* teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type...persistent modeled event"; column 16, lines 54-61, "The Value field...the current cycle")

Motivation – The portions of the claimed method would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may...equal covariance matrices")
- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention...needs and goals")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* to obtain the invention specified in claim 2, a method for computing all occurrences of a compound event. The modification would have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 3:

The rejection of claim 2 is incorporated. Claim 3's further limitations are taught in *Horvitz et al*:

- the compound event type in step (b) is specified as an expression in temporal logic (column 15, lines 32-65, "The event language...within duration t")

Therefore, claim 3 is rejected under the same rationale as claim 2.

Regarding claim 4:

Hill teaches,

- (a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")
- (b) defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only")
- (c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories")
- (d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated")

Horvitz et al teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type...persistent modeled event"; column 16, lines 54-61, "The Value field...the current cycle")

However, *Hill* and *Horvitz et al* don't explicitly teach temporal logic expressions constructed using logical connectives while *Siskind* teaches,

- temporal logic expressions constructed using logical connectives ranging over sets of relations between one-dimensional intervals (page 13, Table 2)

Motivation – The portions of the claimed method would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may...equal covariance matrices")
- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention...needs and goals")
- Quality and accuracy in defining a language's lexical semantic representation (*Siskind*, page 26, section 8, paragraph 2, "The main goal...this methodological framework")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* and *Siskind* to obtain the invention specified in claim 4, a method for computing all occurrences of a compound

event. The modification would have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 5:

The rejection of claim 4 is incorporated. Therefore, claim 5 is rejected under the same rationale as claim 4.

Regarding claim 6:

The rejection of claim 5 is incorporated. Therefore, claim 6 is rejected under the same rationale as claim 5.

Regarding claim 8:

Hill teaches,

(a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")

(b) defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only")

(c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories")

(d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning

Art Unit: 2121

intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced... computer analyzing procedure"; column 5, lines 20-34, "The tail is... specified were generated")

However, *Hill* doesn't explicitly teach spanning intervals, Booleans or real numbers while *Horvitz et al* teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type... persistent modeled event"; column 16, lines 54-61, "The Value field... the current cycle")

Motivation – The portions of the claimed device would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may... equal covariance matrices")
- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention... needs and goals")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* to obtain the invention specified in claim 8, a program storage device. The modification would have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 9:

The rejection of claim 8 is incorporated. Claim 9's further limitations are taught in *Horvitz et al.*:

- the compound event type in step (b) is specified as an expression in temporal logic (column 15, lines 32-65, "The event language...within duration t")

Therefore, claim 9 is rejected under the same rationale as claim 8.

Regarding claim 10:

Hill teaches,

(a) defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent")

(b) defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only")

(c) inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection...N duration categories")

(d) computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated")

Horvitz et al teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type...persistent modeled event"; column 16, lines 54-61, "The Value field...the current cycle")

However, *Hill* and *Horvitz et al* don't explicitly teach temporal logic expressions constructed using logical connectives while *Siskind* teaches,

- temporal logic expressions constructed using logical connectives ranging over sets of relations between one-dimensional intervals (page 13, Table 2)

Motivation – The portions of the claimed device would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may...equal covariance matrices")
- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention...needs and goals")
- Quality and accuracy in defining a language's lexical semantic representation (*Siskind*, page 26, section 8, paragraph 2, "The main goal...this methodological framework")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* and *Siskind* to obtain the invention specified in claim 10, the program storage device. The modification would

have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 11:

The rejection of claim 10 is incorporated. Therefore, claim 11 is rejected under the same rationale as claim 10.

Regarding claim 12:

The rejection of claim 11 is incorporated. Therefore, claim 12 is rejected under the same rationale as claim 11.

Regarding claim 14:

Hill teaches,

(a) computer readable program code means for defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent"; column 4, lines 59-62, "One such element...single recursive subroutine")

(b) computer readable program code means for defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we... terms of CAE's"; column 5, line 1, "and/or PAE's only"; column 5, lines 15-20, "considering a computer...at this level")

(c) computer readable program code means for inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event detection... N duration categories"; 34-63, "Such a grammar-controlled...layer matrix board")

(d) computer readable program code means for computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced... computer analyzing procedure"; column 5, lines 20-34, "The tail is... specified were generated"; column 8, lines 23-24, "It is also... the sequence detector")

However, *Hill* doesn't explicitly teach spanning intervals, Booleans or real numbers while *Horvitz et al* teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type... persistent modeled event"; column 16, lines 54-61, "The Value field... the current cycle")

Motivation – The portions of the claimed method would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may... equal covariance matrices")
- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention... needs and goals")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* to obtain the invention specified in

claim 2, a method for computing all occurrences of a compound event. The modification would have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 15:

The rejection of claim 14 is incorporated. Claim 15's further limitations are taught in *Horvitz et al*:

- the compound event type in (b) is specified as an expression in temporal logic (column 15, lines 32-65, "The event language...within duration t")

Therefore, claim 15 is rejected under the same rationale as claim 14.

Regarding claim 16:

Hill teaches,

(a) computer readable program code means for defining primitive event types (column 4, lines 12-19, "Before any detection...feature is absent"; column 4, lines 59-62, "One such element...single recursive subroutine")

(b) computer readable program code means for defining combinations of the primitive event types as a compound event type (column 4, lines 72-75, "Sub-patterns, which we...terms of CAE's"; column 5, line 1, "and/or PAE's only"; column 5, lines 15-20, "considering a computer...at this level")

(c) computer readable program code means for inputting the primitive event occurrences, such occurrences being specified as the set of temporal intervals over which a given primitive event type is true (column 4, lines 30-35, "Thus event

detection...N duration categories"; 34-63, "Such a grammar-controlled...layer matrix board")

(d) computer readable program code means for computing the compound event occurrences, such occurrences being specified as the set of temporal intervals over which the compound event type is true, wherein the sets of temporal intervals in steps (c) and (d) are specified as smaller sets of spanning intervals, each spanning interval representing a set of intervals (column 4, lines 42-60, "we have reduced...computer analyzing procedure"; column 5, lines 20-34, "The tail is...specified were generated"; column 8, lines 23-24, "It is also...the sequence detector")

Horvitz et al teaches,

- spanning intervals, Boolean values and real numbers (column 13, lines 33-60, "Fields Name Type...persistent modeled event"; column 16, lines 54-61, "The Value field...the current cycle")

However, *Hill* and *Horvitz et al* don't explicitly teach temporal logic expressions constructed using logical connectives while *Siskind* teaches,

- temporal logic expressions constructed using logical connectives ranging over sets of relations between one-dimensional intervals (page 13, Table 2)

Motivation – The portions of the claimed product would have been highly desirable features in this art for

- Minimizing error without restricting cases solved (*Hill*, column 1, lines 32-53, "The aim may...equal covariance matrices")

- Generalizing the event composing system to monitor and perform inference about several classes of events including assisting user's in accomplishing specific tasks (*Horvitz et al*, column 3, lines 38-56, "The present invention...needs and goals")
- Quality and accuracy in defining a language's lexical semantic representation (*Siskind*, page 26, section 8, paragraph 2, "The main goal...this methodological framework")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Hill* with *Horvitz et al* and *Siskind* to obtain the invention specified in claim 16, the computer program product. The modification would have been obvious because one of ordinary skill in the art would have been motivated to assist the user in computing more compound events without compromising accuracy.

Regarding claim 17:

The rejection of claim 16 is incorporated. Therefore, claim 17 is rejected under the same rationale as claim 16.

Regarding claim 18:

The rejection of claim 17 is incorporated. Therefore, claim 18 is rejected under the same rationale as claim 17.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

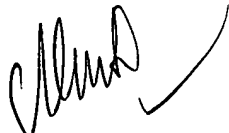
- *Hill*; USPN 3,647,978
- *Horvitz et al*; USPN 6,021,403
- *Siskind*; Grounding Language in Perception; Artificial Intelligence Review; Vol. 8; December 1994; pp 371-391
- *Uchino*; USPN 5,966,523; Method of Estimating Power Consumption of Semiconductor Integrated Circuit
- *Goodridge*; USPN 5,153,922; Time Varying Symbol
- *McAtee et al*; USPN 5,301,320; Workflow Management and Control System
- *Allen*; Maintaining Knowledge About Temporal Intervals; Communications of the ACM; Vol. 26, Iss. 11; November 1983; pp 832-843
- *Chow*; A Generalized Assertion Language; Proceedings of the 2nd International Conference on Software Engineering; October 1976
- *Thiele et al*; On Fuzzy Temporal Logic; Second IEEE International Conference on Fuzzy Systems; Vol. 2; 28 March-1 April 1993; pp 1027-1032
- *Kerridge et al*; Synchronization Primitives for Highly Parallel Discrete Event Simulations; Proceedings of the 32nd Annual Hawaii International Conference on System Sciences; Vol. Track8; 5-8 January 1999; pp 1-10

Any inquiry concerning this communication or earlier communications from the Office should be directed to Melvin Bell whose telephone number is 703-305-0362. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anil Khatri, can be reached on 703-305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MB *Am - n,*


ANIL KHATRI
SUPERVISORY PATENT EXAMINER